

REMARKS

Claim 1-22 were pending in this application.

Claims 1-22 have been rejected.

Claims 1, 5, 8-10, 14, and 17-22 have been amended as shown above.

Claims 1-22 remain pending in this application.

Reconsideration and full allowance of Claims 1-22 are respectfully requested.

I. OBJECTION TO SPECIFICATION

The Office Action objects to the Summary as being “merely a repeat of claims.” (*Office Action, Page 2, Section 4*). In particular, the Office Action asserts that the Summary “does not ‘set out the exact nature, operation, and purpose [of the invention]’ nor provide ‘material assistance in aiding ready understanding of the patent in future searches.’” (*Office Action, Page 2, Section 4*).

The Applicants have amended the Summary as shown above. Based on the comments in the Office Action regarding prior amendments to the Abstract, the Applicants believe that the Summary as amended provides “material assistance in aiding ready understanding of the patent in future searches.” The Applicants also believe that the Summary as amended sets out “the exact nature, operation, and purpose” of the invention.

Accordingly, the Applicants respectfully request withdrawal of the objection to the specification.

II. OBJECTION TO CLAIMS

The Office Action objects to Claim 20 because of a typographical error. The Applicants have amended Claim 20 as shown above. These amendments remove the basis for the objection to Claim 20.

Accordingly, the Applicants respectfully request withdrawal of the objection to the claims.

III. REJECTION UNDER 35 U.S.C. § 102

The Office Action rejects Claims 1-3, 8-12, and 17-22 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,167,503 to Jouppi (“*Jouppi*”). This rejection is respectfully traversed.

A prior art reference anticipates a claimed invention under 35 U.S.C. § 102 only if every element of the claimed invention is identically shown in that single reference, arranged as they are in the claims. (*MPEP* § 2131; *In re Bond*, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (*Fed. Cir. 1990*)). Anticipation is only shown where each and every limitation of the claimed invention is found in a single prior art reference. (*MPEP* § 2131; *In re Donohue*, 766 F.2d 531, 534, 226 U.S.P.Q. 619, 621 (*Fed. Cir. 1985*)).

Jouppi recites a computer system where instructions are divided into sets based on the addresses of data to be accessed by the instructions. (*Abstract*). The sets of instructions are then executed by different execution clusters 280, 290. (*Abstract*; *Figure 2A*). Each of the execution clusters 280, 290 includes multiple execution units (EU) 250, 251. (*Figure 2B*). An instruction

distribution unit (IDU) 204 distributes multiple instructions from an instruction cache 201 to each of the execution clusters 280, 290. (*Col. 4, Lines 24-32*). Register renaming units (RRU) 210-211 receive the instructions from the IDU 204 and assign physical registers to operands in the instructions. (*Col. 5, Lines 59-67*). The instructions are then stored in instruction dispatch buffers (IDB) 220, 221. (*Col. 6, Lines 1-7*). Instruction scheduling controllers (ISC) 230, 231 then issue the instructions to the execution units 250-251, and the execution units 250-251 use the register files 240, 241 to maintain the data referenced by the operands in the instructions. (*Col. 6, Lines 8-14*).

Regarding Claim 1, the Office Action relies on the execution units 250, 251 of *Jouppi* as anticipating the “lanes” recited in Claim 1. (*Office Action, Page 4, Paragraph 9(d)(i)(2)*). The Office Action also relies on an instruction distribution unit (IDU) 204 of *Jouppi* as anticipating the “instruction issue unit” recited in Claim 1. (*Office Action, Page 5, Paragraph 9(d)(iii)*).

Claim 1 has been amended to recite an “instruction issue unit” that issues “complete instruction bundles” toward multiple execution clusters, where at least one complete instruction bundle is “issued having an out-of-order alignment.” Claim 1 has also been amended to recite “alignment and dispersal circuitry” capable of “reordering each of the at least one complete instruction bundle having the out-of-order alignment” so as to “align the syllables in the complete instruction bundle with correct ones of the lanes.”

Because the Patent Office relies on the IDU 204 of *Jouppi* as anticipating the “instruction issue unit” recited in Claim 1, the Patent Office must show that the IDU 204 is capable of issuing “complete instruction bundles” toward multiple execution clusters, where at least one complete

instruction bundle is “issued having an out-of-order alignment.” The Patent Office must also show that some component between the IDU 204 and the execution units 250, 251 of *Jouppi* is capable of “reordering each of the at least one complete instruction bundle having the out-of-order alignment” so as to “align the syllables in the complete instruction bundle with correct ones of the lanes.” The Patent Office cannot make this showing.

Jouppi lacks any mention that particular instructions must be executed by particular lanes in the computer system. For example, *Jouppi* lacks any mention that particular instructions must be executed by particular ones of the execution units 250, 251 in the execution clusters 280, 290. Instead, *Jouppi* simply recites that instructions are provided to multiple execution units, which execute the instructions in parallel.

Because of this, *Jouppi* fails to anticipate an “instruction issue unit” that issues “complete instruction bundles” toward multiple execution clusters, where at least one complete instruction bundle is “issued having an out-of-order alignment” as recited in Claim 1. *Jouppi* also fails to anticipate “alignment and dispersal circuitry” capable of “reordering each of the at least one complete instruction bundle having the out-of-order alignment” so as to “align the syllables in the complete instruction bundle with correct ones of the lanes” as recited in Claim 1.

For these reasons, *Jouppi* fails to anticipate the Applicants’ invention as recited in Claim 1 (and its dependent claims). For similar reasons, *Jouppi* fails to anticipate the Applicants’ invention as recited in Claims 10 and 19 (and their dependent claims).

Accordingly, the Applicants respectfully request withdrawal of the § 102 rejection and full allowance of Claims 1-3, 8-12, and 17-22.

IV. REJECTION UNDER 35 U.S.C. § 103

The Office Action rejects Claims 4-7 and 13-16 under 35 U.S.C. § 103(a) as being unpatentable over *Jouppi* in view of U.S. Patent No. 5,560,028 to Sachs et al. (“*Sachs*”). This rejection is respectfully traversed.

In *ex parte* examination of patent applications, the Patent Office bears the burden of establishing a *prima facie* case of obviousness. (*MPEP* § 2142; *In re Fritch*, 972 F.2d 1260, 1262, 23 U.S.P.Q.2d 1780, 1783 (*Fed. Cir.* 1992)). The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention is always upon the Patent Office. (*MPEP* § 2142; *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (*Fed. Cir.* 1992); *In re Piasecki*, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (*Fed. Cir.* 1984)). Only when a *prima facie* case of obviousness is established does the burden shift to the Applicant to produce evidence of nonobviousness. (*MPEP* § 2142; *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (*Fed. Cir.* 1992); *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (*Fed. Cir.* 1993)). If the Patent Office does not produce a *prima facie* case of unpatentability, then without more the Applicant is entitled to grant of a patent. (*In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (*Fed. Cir.* 1992); *In re Grabiak*, 769 F.2d 729, 733, 226 U.S.P.Q. 870, 873 (*Fed. Cir.* 1985)).

A *prima facie* case of obviousness is established when the teachings of the prior art itself suggest the claimed subject matter to a person of ordinary skill in the art. (*In re Bell*, 991 F.2d 781, 783, 26 U.S.P.Q.2d 1529, 1531 (*Fed. Cir.* 1993)). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or

motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, and not based on the Applicant's disclosure. (*MPEP* § 2142).

As shown above in Section III, Claims 1 and 10 are patentable. As a result, Claims 4-7 and 13-16 are patentable due to their dependence from allowable base claims.

Accordingly, the Applicants respectfully request withdrawal of the § 103 rejection and full allowance of Claims 4-7 and 13-16.

V. CONCLUSION

As a result of the foregoing, the Applicants assert that all pending claims in this application are in condition for allowance and respectfully request full allowance of all claims.

SUMMARY

If any issues arise, or if the Examiner has any suggestions for expediting allowance of this application, the Applicants respectfully invite the Examiner to contact the undersigned at the telephone number indicated below or at wmunck@davismunck.com.

The Commissioner is hereby authorized to charge any fees connected with this communication (including any extension of time fees) or credit any overpayment to Deposit Account No. 50-0208.

Respectfully submitted,

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